Ethnic differences in obesity, diet and physical activity

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Aims and Background

**Aim:** to analyse ethnic differences in obesity, *diet & physical activity*

**Background**
- Obesity is on the increase (links to diabetes, heart disease, cancer)
- Some ethnic differences in obesity identified. Also evidence of healthier diets and differences in levels of physical activity among some minority ethnic groups
- Why might there be ethnic differences?
  - Cultural issues (e.g. significance placed on food, eating together as family, cultural barriers to physical activity; body image; concept of physical activity)
  - Migration
  - Socio-economic confounders
Methods

• Secondary data analysis of Health Survey for England from 1999 and 2004 (ethnic boosts)

• Quantitative exploratory work and logistic regression models

• Use data from the questionnaire, anthropometric measurements, nurse visit

• Use explanatory variables such as gender, age, generation, educational level, type of neighbourhood, migration, diet and physical activity

• Use the household data to examine child obesity - parental obesity, parental education etc

• Pool data to assess change between 1999 and 2004 and look at separate ethnic groups
Logistic regression: adults

Separate models for males and females

Stage 1: Age
    Age2
    Ethnic group

Stage 2: Migrant status
    Highest qualification
    Economic status
    Equivalised income tertiles

    Urban indicator
    IMD quintiles
    This area has good local transport
    This area has good leisure facilities for people like me
    Ease of getting to supermarket

    Meeting physical activity guidelines
    Eating 5 day
<table>
<thead>
<tr>
<th>Obesity (Adults)</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>1.19</td>
<td>1.11</td>
</tr>
<tr>
<td>Age squared</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Ethnic groups (White)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black Caribbean</td>
<td>0.91</td>
<td>2.03</td>
</tr>
<tr>
<td>Black African</td>
<td>0.70</td>
<td>3.18</td>
</tr>
<tr>
<td>Indian</td>
<td>0.47</td>
<td>0.93</td>
</tr>
<tr>
<td>Pakistani</td>
<td>0.54</td>
<td>1.47</td>
</tr>
<tr>
<td>Bangladeshi</td>
<td>0.12</td>
<td>0.68</td>
</tr>
<tr>
<td>Chinese</td>
<td>0.25</td>
<td>0.36</td>
</tr>
<tr>
<td>Irish</td>
<td>0.75</td>
<td>0.92</td>
</tr>
<tr>
<td>Highest qualification (Degree)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Higher education below degree</td>
<td>1.21</td>
<td>1.38</td>
</tr>
<tr>
<td>A-level equiv</td>
<td>1.28</td>
<td>1.54</td>
</tr>
<tr>
<td>O-level/CSE/Foreign/other equiv</td>
<td>1.41</td>
<td>1.65</td>
</tr>
<tr>
<td>No qualifications</td>
<td>1.51</td>
<td>2.08</td>
</tr>
<tr>
<td>Equivilised income tertiles (Highest tertile)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Middle income</td>
<td>1.13</td>
<td>1.35</td>
</tr>
<tr>
<td>Lowest income</td>
<td>1.28</td>
<td>1.36</td>
</tr>
<tr>
<td>Good leisure facilities in area (agree)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disagree</td>
<td>0.75</td>
<td>0.98</td>
</tr>
<tr>
<td>Good local transport in area (agree)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disagree</td>
<td>1.07</td>
<td>0.75</td>
</tr>
<tr>
<td>Physical activity (No)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>0.72</td>
<td>0.65</td>
</tr>
<tr>
<td>Eating 5 day (No)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>1.17</td>
<td>1.16</td>
</tr>
</tbody>
</table>
Logistic regression: children

Separate models for boys and girls

Stage 1: Age
   Ethnic group

Stage 2: Meeting five-a-day guidelines
   Meeting physical activity guidelines

Stage 3: Maternal characteristics (BMI, economic status, highest qualification, smoking status, migrant status)
   Paternal BMI
   Household characteristics (lone parent household, equivalised household income, urban indicator, IMD quintiles)
Logistic regression results: child obesity

- Black African boys and girls more likely to be obese than white reference category
- Parental characteristics are important in explaining child’s obesity – mother’s obesity for girls and father’s for boys
- Mother’s education is an important predictor of obesity for girls. Whilst maternal education may be a route for tackling obesity it seems that girls are more receptive than boys
- There is no effect of mother’s employment on children’s obesity and no evidence that it influences the consumption of 5-a-day
Pros and cons

Pros:
- wide variety of data - anthropometric measures and socio-economic variables
- large sample sizes – boosts
- policy informed questionnaire e.g. BMI
- household/family linkage
- comparability between years (for pooling)
- can use data flexibly – e.g. BMI continuous or dichotomy
- good documentation and help available

Cons:
- restricted to the data collected e.g. Black African group not included in 1999, physical activity for white children not collected in 1999
- weights can be daunting at first
- numbers still small for separate ethnic models (by gender)
- dietary questions are not a good measure for obesity outcome
- info on cultural issues/barriers is not available in the HSE data
Thank you!
Ethnicity

• To which of these groups do you consider you belong?
  – White
  – Mixed ethnic group
  – Black or Black British
  – Asian or Asian British
  – Any Other group
• White \(\rightarrow\) were you or either of your parents born in Ireland?

• Black \(\rightarrow\) what is your cultural background? (caribbean, african or other)

• Asian \(\rightarrow\) what is your cultural background?
  (Indian, Pakistani, Bangladeshi, Indian Caribbean, African-Indian, Other)

• Mixed \(\rightarrow\) were you or either of your parents born in Ireland?
  \(\rightarrow\) what is your cultural background? (8 categories ‘white and xxxx’,
  plus other). Coded to minority group.
  \(\rightarrow\) If other then what is your (natural) mother’s cultural background?
  \(\rightarrow\) If other then what is your (natural) mother’s cultural background?

• Other \(\rightarrow\) what is your cultural background?
  (chinese, japanese, phillippino, vietnamese, other)

• If still ‘other’ at any of the above then do you have family origins which are (BC, BA etc)?

• If still ‘other’ then describe and coded back. If more than one answer e.g. BC and
  Bangladeshi then what is your mother’s cultural background (BC, BA etc)? If still
  other then classed as ‘other’ \((n=143)\)
Examples

• Polish - depends on self-classification at first question - white or other
• Iranian – other (would end up at other whichever route took)
• Black Other – other (if not in BA or BC)
• Possible to look at black other, asian other, white other, mixed